



STATE OF UTAH  
NATURAL RESOURCES  
Oil, Gas & Mining

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4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

February 5, 1985

Mr. Bob Roggenthen  
Western States Minerals Corporation  
4975 Van Gordon Street  
Wheatridge, Colorado 80033

Dear Mr. Roggenthen:

RE: Permit Review, TUG Joint Venture, PRO/003/007, Box Elder County, Utah

The Division has reviewed Western States Mineral's comments received December 24, 1984. The Division still has several concerns as outlined in the attached document.

One of the main concerns deals with the need for approval from the Division of Water Rights for installation of a pond in the bottom of the pit as part of the reclamation plan. When the Division of Water Rights is satisfied then final submittals can be made on reclamation procedures and bonding.

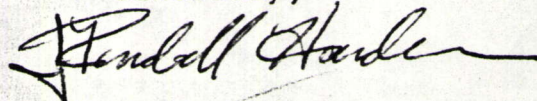
Other concerns mainly deal with clarification and submittal of technical information to be included on the maps and in the reclamation plan.

Please note that the reclamation cost estimate must also be re-submitted based on commitments and changes made in the reclamation plan. The Bond amount must be determined and the surety must post bond before the permit can be approved.

If you have any questions or would like to have a meeting with our staff to discuss the attached comments, please feel free to call.

Thank you for your cooperation.

Sincerely,

  
for Susan C. Linner  
Reclamation Biologist/  
Permit Supervisor

jvb  
0097R



WESTERN STATES MINERALS CORPORATION  
TUG JOINT MINE  
PRO/003/007  
Box Elder County, Utah

February 4, 1985

RULE M-3(1)(e) - DD

The applicant indicates that new changes have been made in the drainage pattern and that this is shown on map 03302/01. The Division has not received this map and cannot make a determination of completeness on this basis.

The applicant should include on the map the locations of all small dams or catch basins that control runoff from the office and shop facilities. The calculations showing their adequacy should be included.

Rule M-3(2)(b) - LK

While developing the pit into a stockwatering/wildlife pond would enhance the area and would be a feasible alternative to complete backfilling and reclamation, before the Division can approve this, evidence that the comments of the Utah Division of Water Rights (copy attached) have been adequately satisfied must be submitted.

RULE M-5 - SURETY GUARANTEE - JRH

The applicant's reclamation cost estimate appears to be inadequate for the general requirements of the Division. Based on changes made from commitments or revisions made in their reclamation plan, the applicant shall readjust their reclamation cost estimate. Included below is a summary of the method used by the Division in determining the bond amount:

Generally, per acre bonding costs without detailed support calculations will not be acceptable. Each cost estimate that determines the amount of the Performance Bond will be computed using the production capabilities of equipment per unit time in relation to the volume of materials needed to be moved (Productivity). This system will be used for most items estimated.

1. The condition assumed for forfeiture would be if the operator ceases operations with site conditions in the maximum allowable disturbance as indicated in the Mining



Plan. This situation will vary with each operator and the mining method and type of equipment used and installed on the site. Therefore, the estimator should seek out the most probable worst case situation and detail and work from that worst case. Detailed maps, drawings or sketches showing location and quantity requirements for each area will greatly assist both the estimator and the reviewer in the calculations. The estimator may develop several cross sections of excavations and backfilling areas to compute the volume of material to be moved. Mass balance calculations also are needed to determine how much material will need to be wasted or borrowed when earthwork is performed. This is especially important in determining topsoil requirements for borrow, stockpiling and distribution. An outline of the calculations or a check sheet is also helpful in keeping track of all the parts of the cost estimate.

2. Reference materials are used by the Division in bond cost estimating are the "RENTAL RATE BLUE BOOK," the "MEANS SITE WORK COST DATA" and "CATERPILLAR PERFORMANCE HANDBOOK". These documents will be the source of data for finalizing cost estimates. The Cat Book gives the productivity rates for each size of equipment manufactured by Caterpillar. The Cat Book also gives a selection of operational factors that affect machine production. Each of these adjustment factors must be considered for use in the final calculations. Likewise, the Blue Book presents the cost of renting various pieces of equipment used in the mining industry, particularly those used for earthwork in reclamation activities. These costs range from hourly to monthly costs. In addition, the hourly operation costs must be included to account for fuel consumption and maintenance costs. The Blue Book costs does not include operator costs. The Means Book is used to determine labor and operator costs. As with the Blue Book rental rates for equipment, labor costs must also be estimated at subcontractor rates with overhead and profit included. The Means Book provides labor rates with these factors included. Additionally, inflation factors for bond estimates are derived from Means Cost Data. Inflation rates for construction during the previous five years are averaged and applied to the cost estimate as an inflation factor.
3. For other activities included in the Reclamation Plan such as demolition, clearing and grubbing, and debris and rubbish removal, Means Cost Data may also be used. Other costs such as seed mixtures, revegetation equipment costs and fertilization costs are obtained from regional



suppliers and operators. Salvage value of equipment or structures is not included in the cost estimate. While salvage value may usually be considered in cost estimating, no salvage value will be included in the reclamation cost estimate. For mine reclamation, all facilities are to be considered as a liability requiring a cost to the regulatory authority to remove them from the mine permit area and no salvage value will be considered.

4. Replacement of topsoil will be calculated on a cubic yard basis. The exact depth of the topsoil to be replaced should be noted in the reclamation plan and on the maps where applicable. In replacing the topsoil, the estimator should consider haul distances, replacement depths, compaction and loss of topsoil during handling. Seedbed preparation, fertilization and mulching costs can be calculated on a cost per acre basis and involve typical farming practices. Irrigation if used, should be costed on a unit basis. However the estimator may compute the actual cost and production associated with individual reclamation equipment and labor rates. The application rates listed in the reclamation plan for seeding, fertilization and mulching should be used by the estimator. Costs for shrubs or tree plantings should also be included and are usually labor intensive.
5. Maintenance costs for areas not successfully revegetated the first time should be included and are based on the probability of success determined by a qualified revegetation specialist knowledgeable of the environmental constraints at each mine.
6. Miscellaneous structures such as sedimentation ponds and diversion ditches need special calculations for bonding purposes. Removal of these special structures needs to be calculated on an individual unit cost basis.
7. Junk piles consisting of old used abandoned equipment, trash, rubble and debris may be estimated on a lump sum basis for removal and cleanup, but should not be ignored.
8. The regulatory authority should take the cost estimate for the chosen construction and add to the cost of contracting, supervision of construction and profit, overhead and contingencies which equals the dollar value for require for the total of all Performance Bonds.



RULE M-6 - PLANS AND MAPS - JRH

The applicant must provide prior to permit approval, revised drawings showing the following:

1. M-10(2)(e): Plan and sections of the protective berm around the open pit.
2. M-10(8): In areas where the berm will be used in conjunction with water diversion, details of the ditch and runoff capacity must also be provided.
3. M-10(8): Reversal in flow direction of the main diversion ditch on Map 03302/01.
4. M-10: Any other changes proposed or planned concerning the surface runoff control, reclamation contours, or any other features as modified or proposed by the applicant.

RULE M-10(1) - LAND USE - JRH

The applicant has indicated that there are no present plans for future mining other than that proposed in the permit application. If such plans are made in the future, an amendment to the reclamation plan would be submitted at that time. The applicant must however address post-mining land use and compatibility in the reclamation plan.

RULE M-10(2)(e) - PUBLIC SAFETY AND WELFARE - JRH

The Division agrees that reclamation of the entire pit is not justified due to the limited benefit and improvement of land use. Installation of berms around the pit and posting of the hazard should be sufficient to mitigate the health and safety hazards associated with the pit.

RULE M-10(3) - IMPOUNDMENTS - JRH

Installation of a stock and wildlife pond in the pit will require approval from State Health and Water Resources. Also temporary and permanent diversion of surface runoff will also require approval. Approval from these agencies must be received prior to permit approval.

RULE M-10(4)&(5) - SLOPES & HIGHWALLS - JRH

Slope stability and ground control under 30CFR 56.3 does require establishment of standards for the safe control of the pit walls and the overall pit slope. A copy of the ground control plan submitted



to MSHA should be included in the applicant's mine reclamation plan to prove long term stability of the pit. This ground control plan should be submitted prior to permit approval. If upon commencement of operations, ground conditions affect the ground control plan, the applicant shall revise and provide further information to the Division concerning ground control.

RULE M-10(8) Drainages - TJS

The applicant must submit designs and calculations demonstrating that the proposed safety berm will be able to divert the 25-year 24-hour peak flow.

If the Division of Water Rights does not approve the post mining land use (i.e. use of the pit as a pond) the applicant must submit designs and calculations demonstrating that the 100-year 24-hour peak will be diverted away from the pit.

RULE M-10 (14) - TLP

ITEM 1

A specific soils resource management map has yet to be provided. Such a map must be submitted and approved prior to approval. It shall be inclusive of the following:

- clearly depict all boundaries for each soil unit found on the permit area
- show all unit symbols and list in map legend
- All sites where soil samples or sub-samples have been taken shall appear on this map and be marked to correspond to all past data submissions.

Proper utilization of the above map and attendant soils data and descriptions will allow for the generation of a soil stripping map to be used by equipment operators in the field.

The map will also serve to indicate the variability in soil fertility levels and facilitate an appropriate response to this.

Based on results of said the following may be necessary:

- Revise table S-1 (soils balance) as needed.
- Revise topsoil storage volumes and acreage requirements as appropriate.



Were soil samples M-A, B and C obtained in one location or do they represent composited sampling?

The historic concern about soil removal at the slopes of the open pit is still pending (refer to October 19 review letter, page 4, item 1).

ITEM 2

Response in latest submission is adequate.

ITEM 4

Is the topsoil stockpile referred to on page 6 as "the soil stockpile to the southwest of the leach pad" the same as stockpile B from the soil stripping map? If so, to where will it be moved? If not, what stockpile is it?

DETOXIFICATION APPROVAL - SCL

Is the September 14, 1984 letter from DOH given as evidence of approval of detoxification methods?

The potential that residual hexacyano ferrates may be a problem was not addressed by the applicant.

The fate of spent materials during temporary cessation of mining was not addressed.

0097R